

## Improving the Efficiency of Primary Care in Safety Net Clinics: San Mateo County's System Redesign

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### Background

High-performing health systems emphasize high-quality patient-centered primary care through a “medical home” (Landon et al. 2010; Doty et al. 2010), team-based care and special efforts to coordinate care for the chronically ill (Coleman et al. 2009), and use of electronic health records (McCarthy and Mueller 2009). In California, San Mateo County is one of a small number of innovative local jurisdictions that is expanding coverage for uninsured adults and at the same time undertaking a reform of its safety net primary care system (Pourat et al. 2009).<sup>1</sup> The purpose is to improve patient outcomes and to increase the efficiency of the care process with a goal of ultimately reducing the cost of care.

The county has six adult medicine primary care clinics, all linked to specialty clinics at the mid-county public hospital, the San Mateo Medical Center (SMMC). As part of a countywide safety net systems reform, all clinics have adopted some or all of the following four systems redesign components:

- Electronic medical records (EMRs) to increase efficiency and coordination of care.
- Team-based care, to leverage physician time through the use of other health professionals such as nurses. Under this model, patients are seen by the same physician, nurse, and clerical staff team each time they visit a clinic.
- Disease management, primarily focusing on diabetes management, including an automated diabetes registry, group visits where diabetes patients learn about self-management, and the use of diabetes retinal cameras to do on-site screenings.
- Advanced access scheduling to improve patient flow and reduce waiting times for appointments at select clinics. This approach allows more patients without an appointment to be seen.

The redesign initiatives are most intensive at the largest county safety net clinic, called the Innovative Care Clinic (ICC) and located on the campus of the SMMC hospital. By mid-2009, the ICC had implemented all four redesign components.

### Methods

We evaluated the impact of the systems redesign at the ICC by comparing outcomes for a group of people served at the clinic before systems redesign to those served at the clinic after systems redesign. The study population is a group of individuals newly enrolled in a county coverage program for the uninsured in April to September 2009 ( $N = 293$ ) and who had at least one visit to the ICC in the year following enrollment. Outcomes for these individuals are compared to a similar cohort of newly enrolled individuals in April to September 2006 ( $N = 646$ ) who were served at the same clinic in the year following enrollment. We obtained claims/encounter

data for both cohorts for the full year following their enrollment, for all services within the San Mateo medical system (including all primary care, specialty care, drugs, emergency room services, and inpatient hospital services), and for emergency room and hospital services from other county hospitals and Stanford University Hospital, which is just over the county border in Palo Alto. (While enrolled in county-sponsored coverage programs, these individuals must receive almost all their outpatient care at the SMMC facilities.)

The evaluation outcomes presented here are those that are available in the clinic and hospital data and that are most closely related to the efficiency of care. These are (for the year following enrollment in coverage):

- any preventive care use
- continuity of primary care
- any emergency room use
- any hospital use

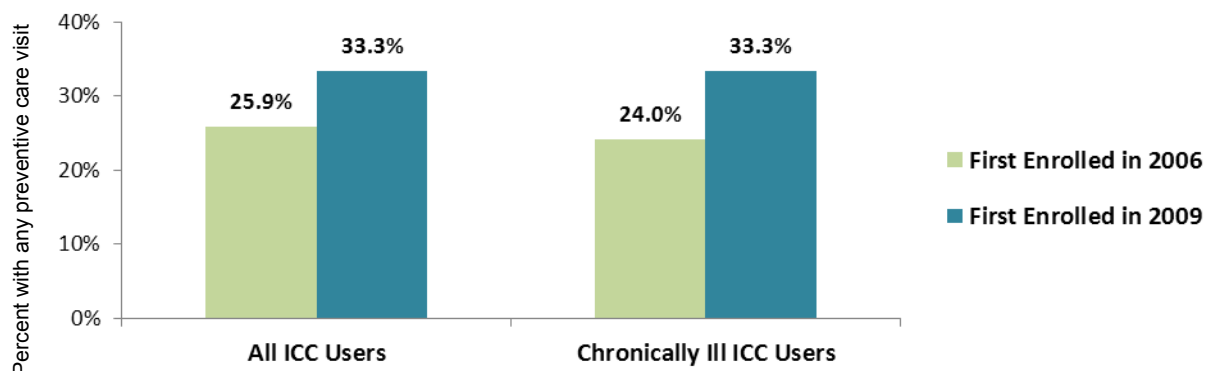
Rates are regression-adjusted,<sup>2</sup> and results are presented as regression-adjusted means. Since certain components of the systems redesign focus particularly on chronically ill patients, we present outcomes for the full study groups and for subgroups with a diagnosis of one or more of the following chronic conditions: asthma, cancer, diabetes, endocrine disease, hypertension, or a lipid disorder.

## Findings

Clinical preventive care services, such as screenings for cancer and other conditions, are designed to identify health problems early in order to prevent more serious health conditions. Many clinical preventive services have been shown to be highly cost-effective (Maciocek et al. 2010). Because of redesign efforts at the ICC, we hypothesize that new patients in 2009 are more likely to use clinical preventive care services than their counterparts in 2006.

Figure 1 shows annual rates of any preventive care services identified in the claims/encounter files in the 2006 and 2009 cohorts, for all ICC patients and for the chronically ill, adjusted for differences in patient characteristics between the two years. Use of preventive care climbs from 25.9 percent to 33.3 percent among all ICC patients ( $p < .10$ ) from 2006 to 2009. The increase for chronically ill ICC users is similar, but is not statistically significant (perhaps due to the small sample size,  $N = 159$  in 2009).

**Figure 1: Any Preventive Care Use by ICC Users in Year Following Enrollment in Coverage, 2006 and 2009**

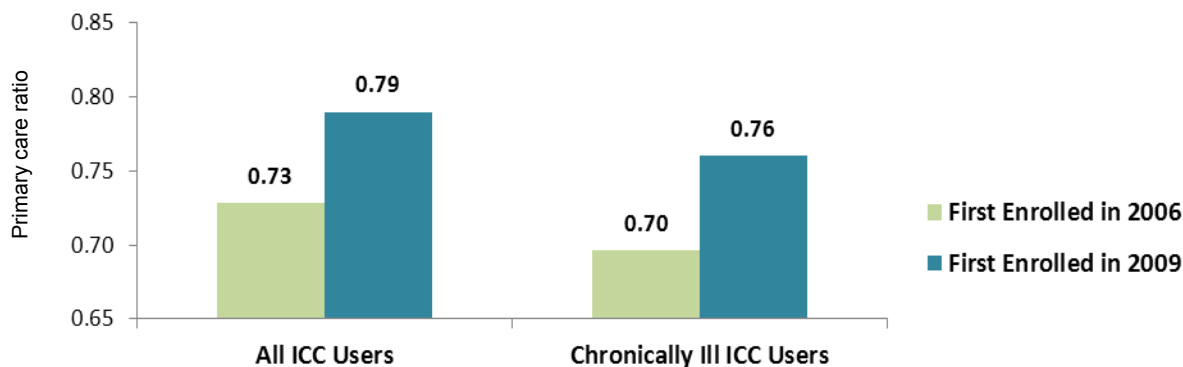


Source: SMMC Clinic Data System.

Note: Percentages are regression-adjusted for enrollee characteristics. Differences between 2006 and 2009 are statistically significant for all enrollees ( $p < 0.10$ ).

Team-based care is designed to improved continuity of care for patients, so they see the same primary care providers each time they come to the clinic. This should lead to improved efficiency (for example, fewer repeated tests) and lower cost in the long term. The evaluation yields promising news concerning continuity of care (figure 2).<sup>3</sup> Between 2006 and 2009, the continuity of care ratio rose significantly from .73 to .79 for all patients served by the ICC and from .70 to .76 for chronically ill patients ( $p < .01$ ). This improvement in continuity of care for those seen at the ICC, combined with the significant increase in preventive care use, suggests a significant improvement in the efficiency of the care process after systems redesign. This, in turn, offers hope that such improvements could lead to reductions in use of more expensive services such as emergency room use.

**Figure 2: Continuity of Primary Care in the Year Following Enrollment in WELL/ACE/ACE County, 2006 and 2009**

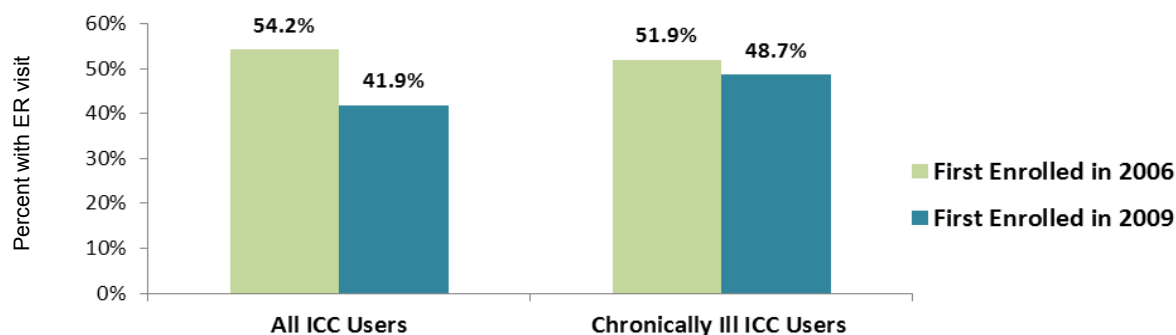


Source: SMMC Clinic Data System and area hospitals.

Note: The ratio is the number of visits to the most frequently seen primary care provider to the total number of primary care visits. Differences between 2006 and 2009 are statistically significant for all patients and for chronically ill patients ( $p < 0.01$ ).

Indeed, the evaluation finds a significant reduction in the use of the emergency room (either at the SMMC or at another local hospital) in the year following enrollment in county coverage. Annual use declined significantly from 54.2 percent to 41.9 percent (figure 3). The decline for chronically ill users is smaller and not statistically significant. While this reduction in ER use is a very positive change, use rates remain high after systems redesign. Before enrolling in coverage, many of these individuals used the ER for their health care while uninsured, so it is not surprising that use remains high in the first year after enrolling.<sup>4</sup>

**Figure 3: Any Emergency Room Visit by ICC Users in Year Following Enrollment in Coverage, 2006 and 2009**



Source: SMMC Clinic Data System and area hospitals.

Note: Percentages are regression-adjusted for enrollee characteristics. Differences between 2006 and 2009 are statistically significant for all ICC users ( $p < 0.05$ ), but not for chronically ill ICC users.

While use of the emergency room declined after systems redesign, there was no significant change in inpatient hospital use between 2006 and 2009. Similarly, there was no significant reduction in average patient charges for all services. Thus, while the reduction in ER use—along with significant improvements in the primary care process—are very positive signs that over time costs will fall, there does not appear to have been a significant near-term reduction in average patient costs in the first year of enrollment in county coverage programs.

Still, there are indications that costs have moderated over previous growth projections. While the county's contribution to the cost of the SMMC remains substantial, the rate of growth in that contribution is much lower than the rate of growth before systems redesign. The rate of growth in the county contribution is also lower than the growth in the medical care CPI between 2006 and 2009. So, while the costs to the county of supporting the primary care safety net remain high, the coverage and systems redesign initiatives appear to have moderated the rate of growth in spending.

## Conclusions

As shown in this brief, it is possible to improve the efficiency of the primary care process in safety net clinics and—in the long term—potentially both improve patient outcomes and reduce the cost of care. These successes include the following:

- Implementation of an electronic medical record, team-based care, chronic disease management, and advanced access appointment scheduling in safety net clinics.
- Improvements in several critical enrollee outcomes, such as the following:
  - ◊ Increased use of preventive care.
  - ◊ Improved continuity of care.
  - ◊ Reduced emergency room use.

The county continues to face challenges likely to be faced by other safety net systems:

- **Low preventive care use:** While preventive care use improved significantly for some patients after systems redesign, it remains relatively low. This means that early detection of health problems is not occurring as often as it should for many patients, meaning that such problems are more severe once they are identified and treated.
- **High emergency room use:** While use of the ER went down for users of the ICC, it remains very high, and it is apparent that the ER continues to be a source of health care for some problems that could be detected and treated in primary care/outpatient settings.

Despite the challenges that remain, the county's experience provides an example for other communities to follow as they improve the efficiency of health care services for the most vulnerable members of society. By 2014, Medicaid programs nationwide will be extended for the first time to all documented adults under 138 percent of the federal poverty level. This group is similar in terms of age and other characteristics to those enrolled in county coverage programs in San Mateo County. They likely have not had good access to primary care while uninsured and have a relatively high prevalence of chronic health problems. To the extent that safety net systems can implement reform initiatives such as those in San Mateo County, the safety net will be better prepared to provide efficient, cost-effective primary care. Thus, San Mateo's coverage and systems redesign initiative provides many positive lessons for the nation and other localities.

## Notes

1. For more information, see the final report for an evaluation of the initiative at <http://www.urban.org/url.cfm?ID=412449>.
2. Control variables in the regression include age and age squared, gender, language, legal status, assets, income, presence of selected physical diagnoses, and presence of a mental health or substance abuse diagnosis.
3. Continuity of care is defined as the ratio of the number of visits to the most frequently seen primary care provider (or team) to total primary care visits. This is measured only for those with two or more visits (which is 78.6 percent of the full cohort and 89.4 percent of the chronically ill cohort for 2009).
4. While we controlled for patient diagnosis, we did not specifically distinguish between avoidable and unavoidable ER visits.

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